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DIVISION ACTIVITIES

HYDRAULICS DIVISION

Proceedings of the American Society of Civil Engineers

NEWSLETTER

June, 1958

PURPOSE OF THE HYDRAULICS DIVISION

(Quoted from the Official Register)

"The advancement and dissemination of knowledge relating to the occurrence of water in nature and its behavior in structures, water courses, and underground.

"In particular the field of the Hydraulics Division shall embrace meteorology and hydrology as they affect the engineer, fluid mechanics in engineering usage, and applied hydraulics as a branch of engineering science which furnishes the basis for hydraulic design and for the practical use of water in the different specialized branches of hydraulic engineering."

HYDRAULICS CONFERENCE AT ATLANTA

August 20-22, 1958

The annual highlight of Hydraulics Division activities is the Hydraulics Conference - an official Society function which is sponsored by the Executive and Technical Committees of the Division. This year the Georgia Section, ASCE, and the Georgia Institute of Technology will be hosts to the seventh conference, to be held in Atlanta on August 20, 21, and 22. Featuring three days of technical reports and discussions, ample opportunity for the exchange of ideas, good fellowship and good fun, the Conference should be on every member's calendar.

Conference Headquarters at Atlanta Biltmore

The Atlanta Biltmore, one of the South's great hotels, has been selected as headquarters for the Conference. Conveniently located only five blocks from the Georgia Tech auditorium which will be used for the technical sessions, the Biltmore is the logical focal point for the informal social life which additionally characterizes the Conferences. By arrangement with the Conference Committee, a block of air-conditioned rooms will be offered at special rates: \$7.00 single, \$10.00 double (family plan). For those who

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always include the Conference in their family vacation plans, it should be emphasized that "family plan" means that mom, dad, and all the kids (under 21) will be accommodated at the double rate. Parking facilities on the hotel grounds will be available to the delegates free of charge.

Atlanta has many other fine hotels and motels conveniently located with respect to Conference Headquarters. For those who wish, a list of alternate accommodations will be available.

Technical Sessions on the Georgia Tech Campus

For the technical sessions, the Conference will meet in the Architecture Auditorium on the Georgia Tech campus, only a short walk from the Biltmore. Air-conditioned, attractively decorated, and acoustically excellent, this fine auditorium is ideally suited to the needs of the Conference. A conducted tour of the Georgia Tech Hydraulics Laboratory is one of the features of the scheduled program.

Surrounding the auditorium and easily accessible for unscheduled visits are many of Georgia Tech's newest and finest facilities, including the beautiful Price Gilbert Library, the Rich Electronic Computer Center, the State Engineering Experiment Station, and the A. French Textile Building. Followers of Tech's famous athletic teams will want to visit the unique football stadium and the unusual, dome-shaped Alexander Memorial Coliseum.

Banquet to Highlight Social Events

As the only scheduled meal function for members, their wives, and guests, a banquet will be held in the Biltmore's Georgian Ballroom on Thursday evening, August 21. The banquet will be preceded by a cocktail hour in the Crystal Lounge, compliments of friends of the Georgia Section. A non-technical after-dinner program will appeal to everyone in attendance.

A full, three-day program of activities is planned for the ladies and children, who traditionally attend this event in considerable numbers. For the ladies there will be tours and teas and a chance to shop in some of Atlanta's excellent retail stores. For the children, there will be picnics and games and supervised fun of all kinds.

A hospitality room will be maintained at the Biltmore, and a list of favorite eating places, theatres, and night spots will be provided for the adventurous.

Atlanta Bids You Welcome

Atlanta, arsenal of the Confederacy - capitol of the dynamic New South. On one hand the culture and lore of the past; on the other the surging vitality of the fastest growing industrial and commercial region of the U. S. Atlantians, a cosmopolitan people, are energetic, friendly, and immensely proud of their beautiful, prosperous city. Famous for its stately homes set deep in rolling, wooded hills, for its 146 parks, for its 25 excellent golf courses, for its 14 colleges and universities, for its fine new art museum and its historical monuments, Atlanta has every facility for an enjoyable visit. Of particular interest to the convention-goer are its many unusual restaurants and

supper clubs. Whether it be French, Italian, Chinese, Mexican Polynesian, or even Southern, you'll find your favorite food in Atlanta.

Hot? Hold on Now!

Atlanta's climate is one of its great attractions. Thanks to its location near the oceans and its elevation (at 1050 m.s.l., it is the highest large city east of Denver), the summer temperatures are actually lower than those in many cities in the midwest, the Ohio and northern Mississippi River valleys, and along the Atlantic coast. During the hottest period of the summer, the temperature seldom goes above 90 degrees for more than three consecutive days, and it rarely approaches the 100 degree mark.

So, Why Don't You Stay a While?

Atlanta is ringed by lakes, including the great man-made reservoirs formed by Allatoona and Buford dams. Within easy driving distance are many other dams and projects of interest to the hydraulics engineer. Just a few hours away are the breeze-swept beaches of the Georgia and Florida coasts. Or, if you prefer, a comfortable drive will take you to cool mountain retreats in the Great Smokies or the Blue Ridge Mountains. Therefore, if it's fishing, water sports, golf, tennis, horseback riding, mountain climbing, or just loafing on the beach you like, you'll find it just around the corner from the Atlanta Hydraulics Conference.

And, Of Course, a Great Technical Program

Three full days of technical sessions will feature timely papers by some of the country's outstanding experts in hydrology, fluid mechanics, and applied hydraulics. The tentative program, unusual in the variety and quality of the papers scheduled, is shown below. The complete and final program, including registration forms, will be contained in the July issue of Civil Engineering as well as a special brochure which will be mailed to all Division members by July 15. So, mark the dates August 20-22 on your calendar. We'll be seeing you in Atlanta.

TENTATIVE ATLANTA PROGRAM

Session Sponsored By
Committee on Hydraulic Structures

Wednesday Morning, August 20

FLOW THROUGH MULTI-OPENING CONSTRICTIONS IN OPEN CHANNELS

Philip H. Carrigan, Jr. and Frederick H. Ruggles,
Hydraulic Engineers, Research Section, Surface
Water Branch, U. S. Geological Survey, Atlanta, Ga.

A NEW APPROACH TO HYDRAULIC DESIGN OF CULVERTS

Herbert G. Bossy, Highway Research Engineer, Division of Highway Research, Bureau of Public Roads, Washington, D. C.

THE HIGHWAY EMBANKMENT AS A BROAD-CRESTED WEIR

C. E. Kindsvater, Regents Professor, Georgia Institute of Technology, Jacob Davidian, Hydraulic Engineer, U. S. Geological Survey, Washington, D. C., and Sherwood P. Prawel, Graduate Student, Georgia Institute of Technology, Atlanta, Georgia.

Session Sponsored by
Committee on Sedimentation

Wednesday Afternoon, August 20

DESIGN OF STABLE CHANNELS IN ALLUVIAL MATERIALS

Daryl B. Simons, Project Leader, U. S. Geological Survey, Colorado State University, Fort Collins, Colo.

SCOUR AT BRIDGE CROSSINGS

Emmett M. Laursen, Associate Professor of Civil Engineering, Michigan State University, East Lansing, Mich.

AN INTRODUCTION TO THE GEORGIA TECH HYDRAULICS LABORATORY

Don B. Jones, Assistant Professor, Georgia Institute of Technology, Atlanta, Ga.

**CONDUCTED TOUR OF THE GEORGIA TECH HYDRAULICS
LABORATORY**

Session Sponsored By
Committee on Hydromechanics

Thursday Morning, August 21

HYDRAULIC STUDIES OF CONCRETE PIPE

Lorenz G. Straub, Director, and Charles E. Bowers, Research Associate, St. Anthony Falls Hydraulic Laboratory, University of Minnesota, Minneapolis, Minn.

ROLL WAVES AND SLUG FLOW IN INCLINED OPEN CHANNELS

Paul G. Mayer, Assistant Professor, Cornell University, Ithaca, N. Y.

**USING THE COLEBROOK-WHITE UNIVERSAL RESISTANCE RELATION
FOR OPEN CHANNEL FLOW**

Arthur T. Ippen, Professor of Hydraulics, Massachusetts Institute of Technology, Cambridge, Mass.

DESIGN METHODS FOR FLOW IN ROUGH CONDUITS

Henry M. Morriss, Professor, Virginia Polytechnic Institute, Blacksburg, Va.

TEACHING FLUID MECHANICS TO UNDERGRADUATES

M. R. Carstens, Professor, Georgia Institute of Technology, Atlanta, Ga.

Session Sponsored By
Committee on Tidal Hydraulics

Thursday Afternoon, August 21

A MODEL STUDY APPROACH TO SALINITY PROBLEMS IN VERMILLION BAY, LOUISIANA

Hu B. Myers, Chief Engineer, Louisiana Department of Public Works, Baton Rouge, La.

TIDAL ACTION AND SALT WATER INTRUSION

Arthur T. Ippen, Professor of Hydraulics, Massachusetts Institute of Technology, Cambridge, Mass.

HYDRAULIC CYCLES AT SOUTHWEST PASS, MISSISSIPPI RIVER

Chester A. Peyronnin, Jr., Associate Professor of Mechanical Engineering, Tulane University, New Orleans, La.

Thursday Night, August 21

Cocktail Hour

Courtesy of Friends of the Georgia Section

Dinner

Atlanta Biltmore, Georgian Ballroom

Greetings From

Mr. Louis R. Howson, President, ASCE

Entertainment

Session Sponsored By
Committee on Flood Control

Friday Morning, August 22

THE LOWER MISSISSIPPI RIVER PROJECT FLOOD STUDY

E. J. Williams, Jr., Chief, Hydraulics Branch, and J. E. Sanders, Chief, Hydrology Branch, Mississippi River Commission, Vicksburg, Miss.

FLOODS IN THE FLORIDA EVERGLADES AREA

Edwin W. Eden, Jr., Chief, Planning and Reports Branch, Engineering Division, U. S. Army Engineer District, Jacksonville, Jacksonville, Fla.

TVA FLOOD CONTROL EXPERIENCE - A 25-YEAR BACKSIGHT

Reed A. Elliott, Chief Water Control Planning Engineer, and LeRoy Engstrom, Chief, River Control Branch, Tennessee Valley Authority, Knoxville, Tenn.

THE HURRICANE FLOODS IN THE CAROLINAS

Nels C. Magnuson, Chief, Planning, Reports, and Programming Branch,
U. S. Army Engineer District, Wilmington, Wilmington, N. C.

Session Sponsored By
Committee on Hydrology

Friday Afternoon, August 23

Symposium on Water Use Problems and Water Rights Legislation in the
Southeastern States

**AGRICULTURAL, RECREATIONAL, AND CONSERVATIONAL WATER
PROBLEMS**

Cecil W. Chapman, State Conservationist, U. S. Department of Agriculture,
Soil Conservation Service, Athens, Ga.

INDUSTRIAL WATER PROBLEMS

T. M. Forbes, Executive Vice President, Cotton Manufacturer's
Association of Georgia, Atlanta, Ga.

MUNICIPAL AND PUBLIC UTILITY WATER PROBLEMS

Robert E. Stiemke, Director, School of Civil Engineering, Georgia
Institute of Technology, Atlanta, Ga.

TRENDS IN WATER RIGHTS LEGISLATION

Robert H. Marquis, Assistant General Counsel, Tennessee Valley
Authority, Knoxville, Tenn.

OPEN DISCUSSION - Robert E. Stiemke, Moderator.

TECHNICAL COMMITTEE NEWS**Hydrology Committee**

The Committee on Hydrology met in Chicago February 22 and 23, 1958, preceding the Chicago Convention. Program plans for 1958 and 1959 were discussed and members of the Committee were assigned to sponsor sessions at the several conventions. Mr. W. E. Hiatt is Chairman of this Committee.

The final report of the Task Force on Hydrologic Data was reported as substantially complete. Mr. D. W. Van Tuyl is Chairman of this Task Force.

The Task Force on Spillway Design Floods recommended an investigation and report on current practices and recommended standards of practice for the following items:

- a. Hydrologic considerations, policies, criteria, and methodology for determination of design flood flows.
- b. Policies, criteria, and methodology for determination of spillway capacities in relation to design flood flows.
- c. Adequacy of statistical analyses of hydrologic data pertinent to flood flows.

Mr. H. O. Banks is Chairman of the Task Force on Spillway Design Floods.

Sedimentation Committee

The Committee on Sedimentation met in Chicago February 22 and 23, 1958, to discuss progress during the past year and plans for the future.

The Task Force on Preparation of Manual on Sedimentation reported that the parts on the mechanics and measurement techniques of sediment were nearly ready for publication. Mr. V. A. Vanoni is Chairman of this Task Force.

The Task Force on Rates of Reservoir Sedimentation has completed its work. Papers were prepared for the 1957 meetings in Cambridge and New York. Mr. H. E. Hudson was Chairman of this Task Force.

The Task Force on Sediment Distribution in Reservoirs arranged for papers at the 1957 New York and the 1958 Portland meetings. This committee will continue to search out information on distribution of sediment in reservoirs. Mr. Samuel Shulits is Chairman of this Task Force.

A new task force on the subject of erosion of cohesive materials was recommended. Program plans for 1958 and 1959 were discussed and members of the Committee were appointed to arrange sessions for several conventions. Mr. A. G. Anderson is Chairman of the Sedimentation Committee.

NEW YORK CONVENTION

The Hydraulics Division will sponsor five technical sessions at the ASCE New York Convention, October 13-17, 1958. The August issue of the Newsletter will feature the complete Hydraulics Division program for the Convention.

The Flood Control session is being arranged by H. A. Foster. The general subject will be flood control on foreign rivers.

Two Hydraulics Structures sessions are being arranged by A. J. Peterka. The subjects are operating problems on spillways and design of hydraulic structures (dams).

The Hydromechanics session will be sponsored by D. R. F. Harleman.

The Tidal Hydraulics session arranged by E. P. Fortson tentatively includes papers on tidal harmonic constants and tidal shoaling.

TECHNICAL PAPER ABSTRACTS

Portland Convention, June 23-27, 1958

(The following technical paper abstracts were available at the deadline for submitting the Newsletter manuscript to ASCE Headquarters for publication.)
Waterways and Harbors Division and Committee on Flood Control, Hydraulics Division

GENERAL PLAN FOR COLUMBIA BASIN FLOOD CONTROL

Brig. Gen. Louis H. Foote, U. S. Army, Ret., Forest Grove, Oregon
(Formerly Division Engineer, U. S. Army Engineer Division, North Pacific, Portland, Oregon)

This paper presents the flood problems encountered in the Columbia River Basin (excluding coastal runoff areas) and summarizes the proposed solution, through combined use of levees and multipurpose storage reservoirs. Emphasis is placed in the unique condition of entirely compatible multi-use reservoir storage which prevails in the Columbia Basin. Proposed operational plans for various levels of development are discussed, and the results of flood routing studies will be presented. Benefits and costs, as well as the allocation of benefits to projects, are summarized. The source material for the paper will be principally from the review report of HD No. 531.

APPLICATION OF SNOW HYDROLOGY TO THE COLUMBIA RIVER BASIN

Oliver A. Johnson, Hydraulic Engineer, U. S. Army Engineer Division, North Pacific, Portland Oregon, and Peter B. Boyer, Hydraulic Engineer, U. S. Army Engineer District, Portland, Oregon.

This paper is intended to show the application of the three major phases of snow hydrology to design and operation of water control projects in the Columbia River Basin. These phases include: (1) Evaluation of rates of runoff from snow-melt or combined rainfall and snowmelt, for use in design flood determination or project operation, based on appropriate thermal budget indexes of basin snowmelt runoff; (2) Evaluation of the volume of water stored in the snowpack, together with all other factors affecting total seasonal volume of runoff, for the application to seasonal runoff forecasting; (3) Determination of the effect of the snowpack on runoff, in storage and delay of liquid water within the snowpack, for evaluating runoff from rain-on-snow conditions. The material for this paper will be extracted primarily from the Summary Report of the Snow Investigations.

A DIGITAL COMPUTER TECHNIQUE FOR STREAMFLOW ROUTING IN THE COLUMBIA RIVER BASIN

David M. Rockwood, Hydraulic Engineer, U. S. Army Engineer Division, North Pacific, Portland, Oregon

This paper summarizes a streamflow routing technique developed for the Columbia River Basin, using an IBM 650 Digital Computer. The method evaluates time delay to runoff effected by basin, lake, and channel storage, for some 40 sub-basins, 7 major lakes, and 33 channel reaches lying within the Columbia River system above The Dalles, Oregon. The routing technique may be applied to streamflow forecasting for reservoir regulation, or for design flood determination. Inputs may be either basin snowmelt or rainfall runoff excesses, or streamflow at key gaging stations. The paper discusses the successive routings through multi-phase reservoir-type storage, and will show results obtained from actual cases.

FOR YOUR CALENDAR

ASCE Meetings

June 23-27, 1958

ASCE, Portland, Oregon, Convention

August 20-22, 1958

Hydraulics Division, Atlanta Conference

September 9-11, 1958

ASCE-AMS, Second National Conference on Applied Meteorology: Engineering University of Michigan, Ann Arbor, Michigan.

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| ASCE | Hydraulics Division | 1958-12--9 |
| October 13-17, 1958 | ASCE, New York Convention | |
| February 9-13, 1959 | ASCE, Los Angeles Convention | |
| May 4-8, 1959 | ASCE, Cleveland Convention | |
| July 1-3, 1959 (Tentative) | Hydraulic Division, Fort Collins Conference | |
| October 19-23, 1959 | ASCE, Washington, D. C. Convention | |
| March 7-11, 1960 | ASCE, New Orleans Convention | |
| June 19-23, 1960 | ASCE, Reno Convention | |
| October 9-13, 1960 | ASCE, Boston Convention | |
| April 10-15, 1961 | ASCE, Phoenix Convention | |
| October 16-20, 1961 | ASCE, New York Convention | |
| February 1962 | ASCE, Houston Convention | |
| May 1962 | ASCE, Omaha Convention | |
| October 15-19, 1962 | ASCE, Detroit Convention | |

Non-ASCE Meetings

| | |
|------------------------------|---|
| June 11-14, 1958 | Third U. S. National Congress of Applied Mechanics, Brown University, Providence, R.I. |
| June 16-18, 1958 | Seventh Hydraulics Conference, Iowa Institute of Hydraulic Research, Iowa City, Iowa |
| September 15-20, 1958 | Sixth International Congress on Large Dams, New York |
| June 15-19, 1959 | American Society for Engineering Education, Pittsburgh, Pennsylvania |
| September 1959 | International Association for Hydraulic Research, Montreal, Canada |

**Deadline dates for Newsletter contributions: August issue - June 15;
October issue - August 15.**

Newsletter Editor:

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P.S. Put a paper clip on page 31 of your 1958 ASCE Official Register. That is the location of your Hydraulics Division vital statistics.

E. B. P.

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